



WHAT IS CLAIMED IS:

- 1. A method of providing missed call notification to a cellular telephone, comprising the steps of:
- (a) receiving a telephone call, which is directed to a cellular telephone, at a central office;
- (b) forwarding call setup information that is representative of the telephone call from the central office to a SS7 gateway and sending a location request communication to a home location register;
- (c) receiving an access denied response with a reason code of at least one of MS Inactive, Busy, No Page Response and Unavailable from the home location register;
- (d) generating, in response to step (c), a message at the SS7 gateway including information identifying the origin of the telephone call;
 - (e) sending the message to a message center; and
- (f) forwarding the message to the cellular telephone when the cellular telephone registers with the home location register, thereby providing notification of a missed call.
- 2. The method of claim 1, further comprising generating the message only when the cellular telephone is not registered with the home location register.



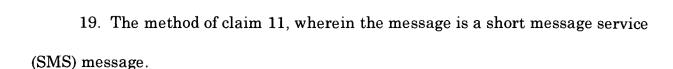
- 3. The method of claim 1, further comprising generating the message only when the cellular telephone is powered off.
- 4. The method of claim 1, wherein the message comprises at least one of a telephone number from which the telephone call originated, a name and a time of the telephone call.
- 5. The method of claim 1, further comprising filtering telephone calls for which notification is provided.
- 6. The method of claim 1, wherein the home location register is associated with a mobile switching center.
- 7. The method of claim 1, wherein the same business entity operates both the central office and a cellular telephone network.
- 8. The method of claim 1, wherein an incremental cost to a customer for receiving missed call notification in accordance with steps (a) (f) is less than an incremental cost to the customer for voice mail service.
- 9. The method of claim 1, wherein the message generator is implemented in one of hardware, software or a combination thereof.





- 10. The method of claim 1, wherein the message is a short message service (SMS) message.
 - 11. A method of providing missed call notification, comprising the steps of:
- (a) receiving a telephone call from a first cellular telephone, which is directed to a second cellular telephone, at a mobile switching center;
- (b) forwarding call setup information that is representative of the first cellular telephone call from the mobile switching center to a SS7 gateway and sending a location request communication to a home location register;
- (c) receiving an access denied response with a reason code of at least one of MS Inactive, Busy, No Page Response and Unavailable from the home location register;
- (d) generating, in response to step (c), a message at the SS7 gateway including information identifying the origin of the telephone call;
 - (e) sending the message to a message center; and
- (f) forwarding the message to the second cellular telephone when the second cellular telephone registers with the home location register, thereby providing notification of a missed call.
- 12. The method of claim 11, further comprising generating the message only when the second cellular telephone is not registered with the home location register.

- 13. The method of claim 11, further comprising generating the message only when the second cellular telephone is powered off.
- 14. The method of claim 11, wherein the message comprises at least one of a telephone number from which the telephone call originated, a name and a time of the telephone call.
- 15. The method of claim 11, further comprising filtering telephone calls for which notification is provided.
- 16. The method of claim 11, wherein the home location register is associated with a mobile switching center.
- 17. The method of claim 11, wherein an incremental cost to a customer for receiving missed call notification in accordance with steps (a) (f) is less than an incremental cost to the customer for voice mail service.
- 18. The method of claim 11, wherein the message generator is implemented in one of hardware, software or a combination thereof.



- 20. A system for providing missed call notification to a cellular telephone, comprising:
- (a) a central office operable to receive a telephone call, which is directed to a cellular telephone;
- (b) a SS7 gateway in communication with a central office operable to receive call setup information that is representative of the telephone call and send a location request communication to a home location register based on the call set up information;
- (c) means for receiving an access denied response with a reason code of at least one of MS Inactive, Busy, No Page Response and Unavailable from the home location register;
- (d) a message generator operable to generate, in response to the home location register, a message at the SS7 gateway including information identifying the origin of the telephone call;
 - (e) means for sending the message to a message center; and
- (f) means for forwarding the message to the cellular telephone when the cellular telephone registers with the home location register, thereby providing notification of a missed call.



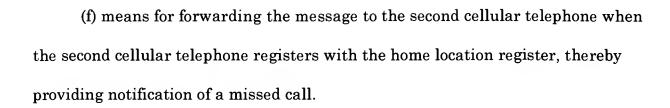


- 21. The system of claim 20, wherein the message is generated only when the cellular telephone is not registered with the home location register.
- 22. The system of claim 20, wherein the message is generated only when the cellular telephone is powered off.
- 23. The system of claim 20, wherein the message comprises at least one of a telephone number from which the telephone call originated, a name and a time of the telephone call.
- 24. The system of claim 20, further comprising means for filtering telephone calls for which notification is provided.
- 25. The system of claim 20, wherein the home location register is associated with a mobile switching center.
- 26. The system of claim 20, wherein the same business entity operates both the central office and a cellular telephone network.
- 27. The system of claim 20, wherein an incremental cost to a customer for receiving missed call notification via the system of claim 20 is less than an incremental cost to the customer for voice mail service.





- 28. The system of claim 20, wherein the message generator is implemented in one of hardware, software or a combination thereof.
- 29. The system of claim 20, wherein the message is a short message service (SMS) message.
 - 30. A system for providing missed call notification, comprising:
- (a) a mobile switching center operable to receive a telephone call from a first cellular telephone, which is directed to a second cellular telephone;
- (b) means for forwarding call setup information that is representative of the first cellular telephone call from the mobile switching center to a SS7 gateway and sending a location request communication to a home location register;
- (c) means for receiving an access denied response with a reason code of at least one of MS Inactive, Busy, No Page Response and Unavailable from the home location register;
- (d) a message generator operable to generate, in response to receipt of the access denied response, a message at the SS7 gateway including information identifying the origin of the telephone call;
 - (e) means for sending the message to a message center; and



- 31. The system of claim 30, wherein the message is generated only when the cellular telephone is not registered with the home location register.
- 32. The system of claim 30, wherein the message is generated only when the cellular telephone is powered off.
- 33. The system of claim 30, wherein the message comprises at least one of a telephone number from which the telephone call originated, a name and a time of the telephone call.
- 34. The system of claim 30, further comprising means for filtering telephone calls for which notification is provided.
- 35. The system of claim 30, wherein the home location register is associated with a mobile switching center.
- 36. The system of claim 30, wherein the same business entity operates both the central office and a cellular telephone network.





- 37. The system of claim 30, wherein an incremental cost to a customer for receiving missed call notification via the system of claim 20 is less than an incremental cost to the customer for voice mail service.
- 38. The system of claim 30, wherein the message generator is implemented in one of hardware, software or a combination thereof.
- 39. The system of claim 30, wherein the message is a short message service (SMS) message.